

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

SOIL SALINITY MANAGEMENT - NONIRRIGATED

(acre)
CODE 571

DEFINITION

Management of land, water, and plants to control harmful accumulations of salts on the soil surface or in the root zone on nonirrigated areas.

PURPOSE

Treatment of saline or sodic-affected areas on nonirrigated land to permit desired plant growth and protect surface and ground water resources.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to all nonirrigated land where (a) human-induced soil salinity or sodicity is at or approaching a level that adversely affects land use, or (b) combinations of factors - topography, soils, geology, precipitation, and land use - indicate the future probability of such adverse effects.

CRITERIA

Corrective measures must comply with all Federal, State and local water quality laws, ordinances, and regulations.

Identification of Saline Seeps

Treatment of saline seeps must include the identification of both the discharge and recharge areas, in addition to the implementation of management practices to improve the soil conditions of the seep area.

Discharge Area

Identification of discharge areas is usually accomplished by visual means, although in some instances, the use of electrical conductivity measurements may be required.

Visual indicators can include:

- Vigorous kochia or foxtail barley growth in small areas where soils would normally be too dry to support weed growth.
- Salt crusting on the soil surface.
- Prolonged soil surface wetness in small areas.
- Poor seed germination.
- Stunted tree growth with leaf chlorosis.

Recharge Area

Procedures for identifying the recharge area include; visual, soil probing, and the use of soil survey information. A visual approximation of the recharge area can be made by considering that the recharge area will always be higher in elevation than the discharge area, and are usually no more than 2,000 feet from the discharge area.

Treatment of Saline Seeps

Remedial treatment of saline seeps can be accomplished through proper soil moisture management. However, no permanent solution can be accomplished with applying control measures to the recharge area.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard access our website at www.wy.usda.nrcs.gov, or contact the Natural Resources Conservation Service.

Recharge Area

The establishment of deep-rooted, perennial crops such as alfalfa is normally required to effect the soil moisture balance of the recharge area. The elimination of fallow and the use of more intensive cropping systems can also be effective where the depth to the bottom of the perched water table is less than 5 feet.

Discharge Area

Once the flow of water from the recharge area has been controlled, reclamation of the discharge area is possible. An electrical conductivity (EC) test should be made of the plow layer (0-6 inches) and the subsequent six inch (6-12) layer. This information can be used to determine what plants can be established. See Agronomy Technical Note #21 for additional information on species adaptability.

Wherever possible, seed should be planted with a drill. Wet soils may be planted by broadcasting, although seeding rates should be doubled.

CONSIDERATIONS

Eliminate fallow periods in recharge areas to increase utilization of soil water decrease infiltration.

Locate snow fences, windbreaks, vegetative filter strips and other structures that can accumulate snow, away from the recharge area.

Roadways across natural drainageways can impede water flow and increase infiltration. Install or improve culverts to minimize the blocking of overland flow.

Plant cover or green manure crops in the recharge area to utilize excess soil water if the planned crop fails due to conditions such as poor stand establishment, hail damage, winterkill, disease or insect damage.

Before reclaiming a saline seep, depth of the water table should be determined. Generally, if not more than 5 feet deep, capillary action will continue to accumulate salts within the root zone.

Determine the relationship of the ground surface topography and the water table contours in and adjacent to the problem area. One suggested method involves installing nine (three rows of three) auger hole observation wells for water table measurements. Additional wells may be needed to adequately define the recharge area.

PLANS AND SPECIFICATIONS

Specifications for establishment and operation of this practice shall be prepared for each field or treatment unit according to the Criteria, Considerations, and Operations and Maintenance described in this standard.

REFERENCES

- Halvorson, Ardell D. 1990. Management of Dryland Saline Seeps. Pg. 372-392. In Kenneth K. Tanji (ed.) Agricultural Salinity Assessment and Management. ASCE, New York, N.Y.
- Majerus, Mark, Plant Materials for Saline-Alkaline Soils. Plant Materials Technical Note No. 26. Bridger Plant Materials Center, USDA – Natural Resources Conservation Service, 1996.